

REMARKS

Reconsideration of the present application is respectfully requested. Claims 1-76 were originally presented. Claims 1-66, 75, and 76 were previously withdrawn, so that claims 67-74 are presently pending. Claim 67 is in independent form.

In the Office Action mailed April 4, 2006, the Examiner rejects independent claim 67 under U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,274,533 to Khare (hereinafter Khare '533) in view of either U.S. Patent No. 6,579,444 to Feimer et al. (hereinafter Feimer) or U.S. Patent No. 6,150,300 to Khare et al. (hereinafter Khare '300). For the reasons given below, Applicants submit that independent claim 67 is not obvious over the prior art, including the combination of Khare '533 with either Feimer or Khare '300.

In the Office Action, the Examiner states that Khare '533 discloses the present invention in all respects, except that Khare '533 "does not disclose that the adsorbent comprises gallium." (Office Action, p. 3, lines 1-11). To cure this deficiency, the Examiner states that "it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Khare '533 by having gallium in the adsorbent because Feimer teaches that at least a portion of aluminum can be replaced by gallium and Khare '300 teaches that aluminum oxide has an equivalent function as gallium oxide." (Office Action, p. 3, lines 16-20).

Applicants submit that the Examiner has failed to establish a *prima facie* case of obviousness using the combination of Khare '533 with either Feimer or Khare '300. To establish a *prima facie* case of obviousness based on a combination of prior art references, an examiner must demonstrate that (1) the references teach or suggest all the claim limitations, (2) the references, coupled with the knowledge generally available in the art at the time of the invention, contain some suggestion or motivation to combine the references, and (3) the proposed combination would have had a reasonable expectation of success, determined from the vantage point of a skilled artisan at the time the invention was made. (MPEP § 2142).

Applicants first submit that the Examiner's proposed combination of Khare '533 with either Feimer or Khare '300 does not teach or suggest all of the claim limitations recited in independent claim 67. Independent claim 67 recites "a composition *consisting of* a metal oxide, a silica-containing material, an aluminum-containing material, . . . a gallium-containing material,

and a promoter metal wherein at least a portion of said promoter metal is present as a reduced valence promoter.” The transitional phrase “consisting of” is a closed term that expressly limits the components of the composition to those that are listed in that portion of the claim. MPEP § 2111.03 states that “[t]he transitional phrase ‘consisting of’ excludes any element, step, or ingredient not specified in the claim.” Additionally, as in this case, “when the phrase ‘consists of’ appears in a clause of the body of a claim, rather than immediately following the preamble, it limits only the element set forth in that clause; other elements are not excluded from the claim as a whole.” (MPEP § 2111.03). Accordingly, in the present case, step (a) of independent claim 67 excludes “materials other than those recited except for impurities ordinarily associated therewith.” (MPEP § 2111.03, quoting *Ex parte Davis* 80 USPQ 448, 450 (Bd. App. 1948)).

Independent claim 67 recites “a promoter metal wherein at least a portion of said promoter metal is present as a reduced valence promoter.” Applicants respectfully submit that this phrase is singular in nature. Thus, when read in light of the transitional phrase “consisting of,” step (a) of independent claim 67 is necessarily precluded from containing more than one reduced valence promoter metal. Conversely, the Examiner’s proposed modification of Khare ’533 must include at least *two* reduced valence promoter metals. Khare ’533 discloses a sorbent “comprised of a *bimetallic* promoter,” wherein “[s]uch bimetallic promoters are formed of *at least two metals . . . with the valence of same being reduced.*” (Khare ’533, Abstract, emphasis added). Nowhere does Khare ’533 state that the reduced valence promoter metal of its invention may comprise only a single metal as is recited in independent claim 67. Accordingly, the modification of the adsorbent of Khare ’533 to include the gallium of either Feimer or Khare ’300 does not teach or suggest all of the claim limitations recited in independent claim 67.

Furthermore, Khare ’533 could not be properly modified to include only one reduced valence promoter metal to arrive at the present invention as recited in independent claim 67. This is due to the fact that there would be no motivation to make such a modification. As mentioned above, in order to establish a *prima facie* case of obviousness, “there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings.” (MPEP § 2143). MPEP § 2143.01 states that no motivation exists to modify a reference, if such a modification “would change the principle of operation of the prior art

invention being modified.” If a proposed modification were to result in “a change in the basic principle under which the [primary reference] construction was designed to operate,” then no motivation exists to make such a modification. (MPEP § 2143.01, quoting *In re Ratti*, 123 USPQ 349, 352 (CCPA 1959) (alteration in original)).

Applicants submit that the use of a bimetallic promoter metal by Khare '533 is a “basic principle under which the [primary reference] construction was designed to operate.” (*Id.*). Khare '533 states that its invention is “*based* upon my discovery that through the utilization of a bimetallic promoter . . . wherein the metals of such bimetallic promoter are in a substantially reduced valence state . . . there is achieved a novel sorbent composition which permits the ready removal of sulfur from cracked-gasoline while providing an unexpected improvement in olefin content retention in the resulting cracked-gasoline.” (Khare '533, col. 2, lines 38-51, emphasis added). This statement makes it clear that the basic principle of Khare '533 is the use of a bimetallic reduced valence promoter metal to achieve a greater olefin retention in a desulfurized cracked-gasoline. Accordingly, a modification of Khare '533 to include only a monometallic reduced valence promoter metal, as is recited in independent claim 67, would change the basic principle under which it was intended to operate. Therefore, there can be no motivation to modify Khare '533 to arrive at the present invention as recited in independent claim 67.

Applicants submit that even if Khare '533 could be modified to include only a single reduced valence promoter metal, it still would not have been obvious to modify the reference to include the gallium disclosed in either Feimer or Khare '300, as suggested by the Examiner.

In rejecting independent claim 67 over the combination of Khare '533 and Feimer, the Examiner states, “Feimer teaches that at least a portion of aluminum can be replaced by gallium.” (Office Action, p. 3, line 18). The Examiner relies upon Feimer’s disclosure at column 7, lines 57-59 to support this assertion. Applicants submit that this disclosure of Feimer would not motivate one skilled in the art to substitute gallium for aluminum in the sorbent of Khare '533 with a reasonable expectation of success.

The word “gallium” appears only once in the Feimer patent - at column 7, line 59. This section of Feimer teaches that the refractory support component of the Feimer adsorbent can be a *zeolite*. It also teaches that the aluminum and/or silicon framework components of such zeolite can be replaced by boron, gallium, titanium, or a trivalent metal that is heavier than aluminum.

In particular, this section of Feimer states, “The aluminum in the zeolite, as well as the silicon component can be substituted with other framework components. For example, at least a portion of the aluminum portion can be replaced by boron, gallium, titanium or trivalent metal compositions that are heavier than aluminum.” (Feimer, col. 7, lines 55-60). Applicants submit that this teaching of Feimer is not a general teaching that gallium can be substituted for aluminum in all types of compositions, or even all types of sorbents. Rather, this teaching is specific to adsorbents that employ a zeolitic support component, because the disclosure only suggests replacing aluminum with gallium in the *zeolite* framework.

Feimer’s teaching that it is possible to substitute gallium for the aluminum and/or silicon framework components of a zeolitic support would not motivate one skilled in the art to substitute gallium for aluminum in a sorbent that does not employ a zeolitic support (e.g., the sorbent composition of Khare ’533). The fact that gallium can be successfully substituted for aluminum in a very specific composition (e.g., a zeolite) used for a very specific purpose (e.g., as a refractory support) does not make gallium and aluminum functional equivalents for all compositions used for all purposes. Feimer teaches that boron, gallium, titanium or trivalent metals heavier than aluminum can be used to replace the aluminum and/or silicon framework components of the zeolite. The Examiner is apparently taking the position that, based on the teachings of Feimer, one skilled in the art would consider boron, gallium, titanium, and any trivalent metal heavier than aluminum to be equivalents of aluminum when employed in sorbent compositions. Under this line of reasoning, one skilled in the art would have also been motivated to substitute any trivalent metal heavier than aluminum for the aluminum component in any sorbent, with a reasonable expectation of success. Applicants submit that this line of reasoning is untenable and does not meet the standards set forth by the courts or by the MPEP. It is well established that listing several compounds as interchangeable for one purpose (e.g., to make the zeolite of Feimer) will not establish their equivalency for all purposes (e.g., to make the non-zeolitic sorbent of Khare ’533). (See *In re Jezl*, 396 F.2d 1009, 1012, 158 U.S.P.Q. 98, 99-100 (C.C.P.A. 1968)). Therefore, Applicants submit that the teachings of Khare ’533 and Feimer would not motivate one skilled in the art to modify the sorbent of Khare ’533 by substituting gallium oxide for the aluminum oxide component with any reasonable expectation of success.

In rejecting independent claim 67 over the combination of Khare ’533 and Khare ’300,

the Examiner asserts that it would have been obvious to replace the aluminum oxide of Khare '533 with the gallium oxide of Khare '300 because "Khare '300 teaches that aluminum oxide has an equivalent function as gallium oxide (see col. 3, lines 37 and 40)." (Office Action, p. 3, lines 19-20).

The portion of Khare '300 relied on by the Examiner as teaching the functional equivalence of aluminum oxide and gallium oxide (i.e., col. 3, lines 37 and 40) does not explicitly state that aluminum oxide and gallium oxide have equivalent functions. Rather, this section of Khare '300 is simply a Markush group that lists a total of 40 metal oxides that are disclosed as being suitable for use as a component of the colloidal oxide solution of Khare '300. It appears that the Examiner is relying on the fact that aluminum oxide and gallium oxide are listed in the same Markush group of Khare '300 as the sole support for the assertion that they are functionally equivalent.

Applicants submit that it is improper for the Examiner to rely solely on the fact that aluminum oxide and gallium oxide are listed in the same Markush group to support the assertion that they are functional equivalents - especially in light of the fact that the particular Markush group of Khare '300 lists 40 different metal oxides. Surely the Examiner would not contend that all 40 metal oxides listed in the Markush group of Khare '300 are functional equivalents. The MPEP directly addresses this issue by stating that "[t]he mere fact that components are . . . members of a Markush group cannot be relied upon to establish the equivalency of these components." (MPEP § 2144.06). Other than listing them in a common Markush group, Khare '300 provides no indication that aluminum oxide and gallium oxide have equivalent functions. Therefore, Applicants submit that neither Khare '533, Khare '300, nor the knowledge of one skilled in the art provides any motivation to modify Khare '533 by substituting gallium for aluminum, or that there would be a reasonable expectation of success even if one did substitute gallium or aluminum in Khare '533.

For all of the foregoing reasons, Applicants submit that the Examiner has failed to establish a *prima facie* case of obviousness. Accordingly, Applicants respectfully request withdrawal of the rejection of independent claim 67 based on the combination of Khare '533 with Feimer or Khare '300.

Applicants submit that independent claim 67 should now be in condition for allowance. Furthermore, while claims 68-74, which depend from independent claim 67, recite additional patentable features, these claims should also be in condition for allowance because they depend from a patentable independent claim.

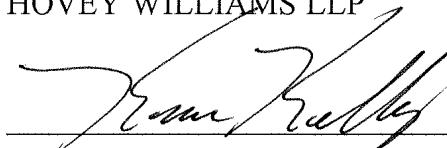
In light of the foregoing, Applicants submit that the present application should now be in condition for allowance and such allowance is respectfully requested. Should the Examiner have any questions, please contact the undersigned at (800) 445-3460.

A 2-month Petition for Extension of Time accompanies this Response, along with a request to debit Deposit Account No. 19-0522 for the amount of \$450.00 for the petition fee set forth in 37 C.F.R. § 1.17(a)(2). The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 19-0522.

Respectfully submitted,

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